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Araştırma Makalesi / Research Article

Revisiting the Impact of Fragility on Economic Growth: New Insights From Sub-Saharan Africa*

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Abstract

This research examines fragility impact on Sub-Saharan Africa's economic growth from 2006 to 2019. The variables of interest for this study include economic decline, economic inequality, human flight, brain drain, external intervention, and economic growth. The research objectives are to empirically investigate the connection between fragility indices and economic growth and determine the impact of fragility indices on economic growth. The existence of cointegration was ascertained in our variable using the Westerlund cointegration test. A fully modified ordinary least squares estimation technique was adopted for the first objective, and the findings showed that only external intervention indices positively impacted economic growth. In achieving our second objective, we adopted mean group, augmented mean group, and common correlated effect mean group estimation technique and found that the coefficients of economic decline, economic inequality, and human flight and brain drain had negative impacts on economic growth. In contrast, the external intervention had a positive impact. The research study recommends that fragile countries' governments develop corrective measures to remove these indicators to ensure progressive growth. Also, state administrations must ensure that suitable policies are implemented to encourage research and development. This will limit the problem of human flight and brain drain, which are significant problems in fragile countries.

Keywords: *Fragility Indices, Economic Growth, Foreign Direct Investment, Sub-Saharan Africa, Panel Data.*

Kırılganlığın Ekonomik Büyüme Üzerindeki Etkisinin İncelenmesi: Sahra Altı Afrika'dan Yeni Görüşler

Öz

Bu araştırma, kırılganlık endekslerinin 2006'dan 2019'a kadar Sahra Altı Afrika'nın ekonomik büyümesi üzerindeki etkisini incelemektedir. Çalışmanın değişkenleri arasında ekonomik gerileme, ekonomik eşitsizlik, insan kaçışı, beyin göçü, dış müdahale ve ekonomik büyüme yer almaktadır. Araştırmanın amacı, kırılganlık endeksleri ile ekonomik büyüme arasındaki bağlantıyı ampirik olarak araştırmak ve kırılganlık endekslerinin ekonomik büyüme üzerindeki etkisini belirlemektir. Westerlund eşbütünleşme testi kullanılarak değişkenler arasında eşbütünleşmenin varlığı tespit edilmiştir. Birinci amaç için FMOLS tahmin tekniği benimsenmiş ve bulgular sadece dış müdahale endekslerinin ekonomik büyümeyi pozitif yönde etkilediğini göstermiştir. İkinci olarak ise, ortalama grubu, artırılmış ortalama grubu ve ortak ilişkili etki ortalama grubu tahmin tekniğini benimsenmiş ve ekonomik gerileme katsayısı, ekonomik eşitsizlik ve insan kaçışı ve beyin göçünün ekonomik büyüme üzerinde olumsuz bir etkisi olduğu ve buna karşılık dış müdahalenin ekonomik büyüme üzerinde olumlu bir etkisi olduğu bulunmuştur.

Anahtar Kelimeler: *Kırılganlık Endeksleri, Ekonomik Büyüme, Doğrudan Yabancı Yatırım, Sahra Altı Afrika, Panel Veri.*

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INTRODUCTION

The concept of fragile states has become ubiquitous. The failing or fragile state is referred to as a source of grave security threats, as a particularly challenging context for development assistance, and as an impediment to the achievement of human development goals. The term 'failed state' appears to have emerged in the early 1990s and was used in reference to dramatic cases of state collapse, generally occasioned by severe internal conflict. Indeed, one of the earliest attempts to measure the incidence of state failure was made by the George Mason University's state failure task force which took events such as revolutionary war, regime change and genocide as instances of state failure (Amaizo et al. 2012). Typical failed states are, according to this definition, Yugoslavia, Rwanda, Somalia, and Afghanistan, where severe conflict meant that no governing authority has effective control over the territory. Obviously, such circumstances are associated with a variety of crises which would be of concern to the international community: forced displacement and refugee flows, violations of humanitarian law and international criminal law, massive destruction of human and physical capital, and possible 'ungoverned spaces' which might become operational homes to terrorist organizations or conduits for transborder flows of people, drugs, and weapons.

Fragility may take many different forms and can be economic, political, social or all together. In some of the worst cases, fragility has been associated with open conflict. Many countries in Sub-Saharan Africa (SSA) have suffered civil wars, and some of them suffer from widespread violence, the threat of widespread violence, or civil war in the present. Whatever form it takes, fragility is strongly associated with underdevelopment. It is highly likely that fragility and underdevelopment will feed on and sustain each other (McKay and Thorbecke, 2019). The democratic governance in fragile states is often chaotic because of the urge and tendency of administration change which throws the country into conflict and unrest. If there is a smooth administration, then the country is safe, and there will be a massive improvement in the operation, savings, and finance sector of the economy. The extant literature (Tabassam et al.2016, Agbiboba, 2012, Khan et al.2022) has found a strong correlation between political unrest and corruption, which is one of the demeaning factors of fragile states (IMF, 2015).

Against this backdrop, the major objective of this research is to investigate the impact of fragility on the economic growth of the ten most fragile African countries from 2006 to 2019. It considers the factors for mensuration offered by Fund for Peace. The empirical evidence obtained from this study is expected to be of some worth to policy analysts, suggesting the progression of state stability and stimulate economic growth of the selected fragile SSA countries.

Fragility and conflict are among the greatest development challenges of our time. The failing or a fragile state is referred to as a source of grave security threats. According to the African Development Bank Group (ADBG, 2013), four of five fragile states around the world are situated in Africa. For the past decade, Africa has exhibited strong economic growth, but this has not translated into a corresponding improvement in the lives of the people. Many initiatives such as Millennium Development Goals developed by United Nations are geared towards international and local development, most of them in favour of Africa countries; for example, new EU funding for African Peace and Security (OECD, 2018). However, this is not reflected in the economic and social status. Unfortunately, these initiatives have caused challenges for many African countries like Sudan, Nigeria, Uganda, Congo, and Ethiopia because of bad policy environments that led to high poverty rates, political unrest, and increased debt. These bad

policy environments hindered development in many African states; for instance, the recent political and economic imbalance in Somalia (Ibrahim et al. 2020). For this purpose, in this research, the causes of the negative effects of vulnerability on economic development have been empirically examined for SSA countries.

2. LİTERATURE REVİEW

Several academic studies have been completed on fragile states and economic growth. Some of those studies are reviewed in this section with a bid to identify the gaps and the positioning of this current study within the body of the knowledge. One of the important studies in this field is Kılınç (2021). In his study, Kılınç (2021) tested the effect of the economic fragility index on economic development by using panel data methods (Common Correlation Estimators) for emerging markets. Findings from the DCCE-GMM estimator suggest that economic development will decline as economic vulnerability increases in selected emerging market economies. Accordingly, a 1% increase in the economic fragility index reduces the human development index by 0.04%.

Another important study is Cordina (2004). Cordina (2004) tried to explain why some of the fragile economies have high per capita income levels by integrating economic fragility into the Neo-Classical growth model. The steady-state results indicated that the more fragile economy would tend to have higher per capita capital stock and output but a lower level of consumption as more resources are devoted to saving in overcoming vulnerability. In addition, dynamic modeling analyzes revealed that fragility is relatively underdeveloped. It has been observed that economies tend to slow down their growth rates, while more developed economies tend to increase their growth rates.

Bertocchi and Guerzoni (2010) have conducted a panel analysis covering the period from 1992 to 1997 to explore the determinants of state fragility in a geographical area. Their findings show that establishments, particularly the civil liberties index and the variety of insurrections, are the most deciding factors of fragility, considering their likely occurrence. On the other hand, economic components like financial gain advancement and equity show a weak influence. Baliamoune-Lutz (2009) investigates the consequences of political establishments, openness to trade, and social cohesion on development in fragile states and observes that the effect of per capita financial gain interconnects with many alternative elements. On the far side, trade openness may very well be harmful to financial gain, whereas little enhancements in political establishments will have adverse effects.

Gounder and Saha (2007), using the Generalized Method of Moments (GMM) for the period 1971-2003 in 6 South Pacific Island economies; They tested the relationship between economic growth, output volatility and economic fragility. Results: It reveals that there is a negative relationship between economic growth and the economic fragility index.

Olorogun (2021) examines FDI and economic progress in Ghana. Using annual time series data obtained from the World Bank over a period from 1984 to 2018, he implements an ARDL approach and finds that external factors affirm positive impact on FDI attraction and economic development. Specifically, inflation and population have a long and short run substantial impact on attraction of FDI into Ghana. Similarly, at the micro level, financial expansion in the financial sector exerts a significant positive long- and short-term effect on FDI attraction.

Zaouali and Ouechtati (2013) analyzed the effects of economic vulnerabilities on economic growth in 15 MENA countries over the period 1996-2010 using dynamic panel data (GMM) have been investigated using As a result of their analysis, they found that economic fragilities have a negative effect on economic growth, while institutions and foreign trade have a positive effect.

Toh (2016) examined the effects of macroeconomic volatility on economic growth in 44 African countries for the period 2004-2015. In the analysis made in this context, the variables of export intensity (Herfindahl-Hirchman Index) and economic openness are used to represent economic vulnerabilities, as well as the volatility and macroeconomic resilience in GDP per capita and growth rates. As a result of their analysis, it has been determined that the volatility in growth rates on GDP per capita has a negative effect, whereas economic openness, export intensity and macroeconomic resilience have a positive effect.

The empirical study conducted by McGillivray (2008) uses a panel information from 1977 to 2001 and GMM as the estimation model. The study inspects potential connectivity between aid and economic process in fragile nations and finds that growth would have been 1.4 lower in extremely fragile states within the absence of aid, compared to 2.5 in alternative countries. Furthermore, highly fragile states viewed from a per capita financial gain growth perspective would absorb three times more aid. In the research conducted by Moussa et al. 2016, the macroeconomic impact of economic freedom on FDI inflows in fragile and conflicted areas Sub-Saharan, Oceania and Post-Soviet Union is investigated. The findings reveal the highest positive impact of economic freedom on FDI under a fixed effects model in global cases, whereas the lowest ones are documented in Oceania and fragile-conflicted affected areas.

3. MATERIALS AND METHODS

Within the scope of this study, the relationship between fragility and economic growth in SSA countries was examined with the help of panel data analysis and annual data for the period of 2006 and 2019. Fragile State Index (FSI), calculated by the Fund for Peace, was used to represent vulnerability in the study. In addition, real GDP obtained from the world bank database was used to represent economic growth.

The study investigates the impact of fragility on economic growth among 10 countries in SSA (Congo Democratic Republic, Central African Republic, Chad, Sudan, Zimbabwe, Burundi, Cameroon, Nigeria, Guinea, and Mali) with dataset spanning between 2006 and 2019 via annual data. The variables utilized were transformed into their natural logarithm to make the series conform to normality. A direct negative relationship is expected among economic decline (ECD), economic inequality (ECI), human flight and brain drain (HFD) and gross domestic product (GDP). It is assumed that more ECD, ECI and HFD will bring about decrease GDP.

An inferential statistical technique was adopted as the method of analysis. Firstly, data were tested for cross-dependence using Breusch-Pagan LM test; however, there was evidence of cross-dependence among the variables which could lead to invalid test statistics and inefficient estimator values. To mitigate this effect, we conducted a CIPS second-generation unit root (Pesaran, 2007); there upon, the variables became stationary.

We proceeded by confirming the existence of cointegration in our variable using the Westerlund cointegration test. FMOLS was adopted for robustness check and to investigate the connection among the variables. Subsequently, AMG estimator, CCEMG and MG second-

generation estimator were used for diagnostics of the model and to empirically determine the impact of fragility indices on economic growth, in addition to the Dumitrescu-Hurlin causality test to determine the causal relationship among the variables.

3.1. Model Specification

The model adopted for this study was adapted from previous empirical models (Saba &Ngepah, 2019). The empirical findings of their study revealed a long-run equilibrium relationship among the investigated variables, which is in tandem with the current study. Hence, the current model is presented in as:

$$GDP = f(ECD, ECI, HFD, EXI) \quad 1$$

Where, GDP represents Gross Domestic Product and is a proxy for economic growth. The lists of the independent variables are the fragile state indexes/indicators.

In logarithm forms, equation 1 becomes

$$lnGDP_{i,t} = \beta_0 + \beta_1 ECD_{i,t} + \beta_2 ECI_{i,t} + \beta_3 HFD_{i,t} + \beta_4 EXI_{i,t} + e_{i,t.} \quad 2$$

where, $\beta_0$represents constant of the panel estimate, ECD represents the Economic Decline, ECI represents Economic Inequality, HFD represents Human Flight and Brain Drain, EXI represents External Intervention, *e* represents the error term for every cross section i (i=1, 2,…….,10), and year period t (t = 2006, 2007….,2019).

4. RESULTS AND DISCUSSION

We present the result of the analysis and interpretation in line with the past studies to generate suitable policy recommendations in tandem with the research objectives. We also apply different econometrics models to show the significant level of the data in the study.

4.1. Correlation Test

Correlation matrix was conducted to ascertain correlation relationship among the variables. The correlation that exists between each pair of explanatory variables must not be more than 0.8; if so, there is a tendency of multicollinearity (Bryman & Cramer, 1997). It could also be observed that there was no multicollinearity among the variables, which would reduce the precision of the estimated coefficient and weaken the statistical power of regression model.

Table 1: Correlation Test Results

Indicators	LGDP	ECD	ECI	HFD	EXI
LGDP	1.000				
ECD	-0,4883	1000			
ECI	0.0589**	0,0371*	1000		
HFD	0.3492	0,0291*	0,1989	1000	
EXI	-0.4228	0,2664	0,2037	-0,0982	1000

*Statistical significance at 5%, **Statistical significance at 10%

According to our results, GDP was negatively related with ECD. This is in line with the a priori expectation. Additionally, ECI was statistically significant at 10 percent, while the EXI was negative related to GDP. This might be because of the negative externalities such as natural resources exploitation by rebel groups in Congo, as observed in Berdal (2005). This affects the balance of power, thereby making the growth in the fragile states unstable.

4.2. Cross-Sectional Test

Before choosing the appropriate unit root test and cointegration test in a panel study, it is crucial to test for cross-sectional dependence (Tugcu, 2018). Since T>N in this current research, Breusch-Pagan LM, Pesaran scalad LM and Pesaran CD tests were conducted to avoids invalid test statistics and to make the estimator efficient. The test result shown in Table 2, however, indicates a cross-sectional dependence in the residuals of the panel data because the p-value < 0.05, therefore we reject the null hypothesis (H0: There is no cross-section dependence) which implies the existence of cross-sectional dependence.

Table 2: Breusch-Pagan LM Result

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	250.7693	45	0.0000
Pesaran scaled LM	21.68999		0.0000
Pesaran CD	8.481742		0.0000

4.3. Panel Unit Root Test

Since the result indicated cross-sectional dependence, we applied CIPS second-generation test introduced by Pesaran (2007) as it allows cross-sectional dependence among the series and provide more accurate results as compared to first-generation unit root tests. The result is presented in Table below. A significance level at one percent was observed at first difference which implies that the variables are stationary.

Table 3: Findings from Panel CIPS Unit Root Test

Variable	Level		First Difference	
	Zt.bar	P-Value	Zt.bar	P- Value
LGDP	-3.08532	0.0010*	-13.0324	0.0000*
ECD	-3.7709	0.5218	-16.2745	0.0001*
ECI	-0.8900	0.1867	-23.5178	0.0000*
HFD	-0.9986	0.1590	-20.0557	0.0000*
EXI	1.3858	0.0829	-19.4521	0.0000*

*Statistical significance at 1 %.

4.4. Swammy, Peseran and Yamagata Heterogeneity Test

The prerequisite for being heterogeneous to be able to use the Westerlund test was ascertained. Since time is greater than cross section in this study, i.e., t > n, we performed Swammy, Pesaran and Yamagata heterogeneity test.

On the other hand, according to the results of the Swammy (1970) and Pesaran and Yamagata (2008) test conducted to investigate the heterogeneity given in the Table below, it is seen that the null hypothesis regarding the homogeneity of the parameters of the models belonging to the estimated model was rejected. According to this finding, it is concluded that the parameters of the model are heterogeneous.

Table 4: Swammy, Pesaran and Yamagata Heterogeneity Test

Variables	Swammy (1970) Chi2 Test Statistic Value	Pesaran Yamagata Test	
Model	117222.12***	Δ	Δadj
		5.793***	7.663***

Test of parameter constancy: chi2(45) = 11722.12 Prob > chi2 = 0.0000

Note: () shows probability values. In addition, * indicates the significance levels of 0.10, **0.05 and *** 0.01.

4.5. Cointegration Test

The existence of cointegration was ascertained using the Westerlund cointegration test (Westerlund, 2007) as it can be used with or without cross-sectional dependency and are general enough to allow for a large degree of heterogeneity, both in the long-run cointegrating relationship and in the short-run dynamics, as indicated in Table below. According to the p-values, the null hypothesis of no cointegration among the variables was rejected. Hence, there was cointegration among the observed variables, which implied a long-run relationship in our model. This confirmed the previous findings of Okafor et al. (2017).

Tablo 5: Cointegration Evidence by Westerlund

Statistics	Value	Z-value	P-value
Gt	-1.216108	2.17018	0.0337**
Ga	-1.828508	-1.48599	0.9998
Pt	-2.932044	-1.92341	0.0017*
Pa	-2.514271	-2.53788	0.0060*

*****Statistical significance at 1%, ** Statistical significance at 5 %.

4.6. Fully Modified Ordinary Least Squares (FMOLS)

To investigate the connection between fragility indices and economic growth, FMOLS as introduced and developed by Philips and Hansen (1990) was adopted; see Table below.

Table 6: FMOLS Test Result

Variables	FMOLS	
	Coefficient	P-Value
ECD	-0.130887	0.0283**
ECI	-0.151857	0.0549***
HFD	-0.178176	0.0211**
EXI	0.189961	0.0011*

*Statistical significance at 1%, **Statistical significance at 5%, ***Statistical significance at 10%.

We could observe that the ECD coefficient in FMOLS was significant at five percent. According to our result, a percentage increase in ECD will have a diminishing impact on GDP. In discovering the connectivity between ECI and GDP, a statistical significance at 10 percent was observed in FMOLS test. This might probably be due to the spillover effect of illicit trade, high levels of corruption, and illicit financial transactions such as money laundering or embezzlement (Signe et al. 2020), resulting in uneven income distribution within the economy.

The empirical result in this research indicated that HFD had a significant impact on GDP at five percent using FMOLS. According to population theory, it is expected that the higher the population the better the economy should project because of human resources (Peterson, 2017). However, our result showed a negative effect on GDP. This is most likely due to the result of deteriorating working conditions and environmental neglect in these fragile states. These conditions prompt the outflux of skilled workers, thereby depriving the state economy of experts and professionals required to generate economic growth (Akokpari, 2017)

From the result obtained, we can conclude that the EXI coefficient positively affects the GDP at a significant level such as 1%. This means that a unit increase in EXI in the countries studied will have a positive effect on economic growth due to positive externalities such as foreign direct investment, bilateral trade agreements and open trade.

4.7. Panel Mean Group (MG), Augmented Mean Group (AMG) and Common Correlated Effect Mean Grouo (CCEMG)

We utilized MG estimator (Pesaran and Smith, 1995), AMG estimator (Eberhardt, 2005) and CCEMG (Pesaran, 2006) for diagnostics test as shown in Table below. We observed from the result that the model estimates of CCEMG were more robust, considering that it had the least RMSE value.

Table 7: Panel MG, AMG and the CCEMG Estimations

Variables	MG Test	AMG Test	CCEMG Test
ECD	-0.028**	-0.8025	-0.1232
ECI	-2.1742*	-2.5637*	-3.4103**
HFD	-0.5375	-0.7390	-0.1024*
EXI	1.6533*	1.8965	1.5679
C	65.706**	89.789*	-73.759**
T	1.6147	1.3015	1.2402
Wald	35.345*	28.892*	15.242*
RMSE	6.823	5.945	4.242

*Statistical significance at 1%, **Statistical significance at 5%,

The indicators of economic decline (FSI, 2017) such as illicit trade, drug and human trafficking, capital flight, and high levels of corruption tend to slow economic growth, which was evident in our result. We found out that the coefficient of economic decline was significant at five percent. This denoted that a unit increase in ECD among the studied countries will lead to a statistically significant decrease in GDP, which was in tandem with the result produced in a previous study carried out by Adefeso (2018) which confirmed ineffective control of corruption and political instability in Guinea at-0.42 and -0.27 respectively. This indicated that on average governance crisis (e.g., Burundi when the president announced his plan to run a third term in 2015) was persistent and negatively impacted the growth and development in this region.

Additionally, a significant level of 1% was observed in HFD. Seyoum et al. (2020) suggested that HFD has negative coefficient. However, among the observed countries, an increase in HFD leads to a statistically significant decrease in GDP. This meant that an increase in HFD could reduce GDP.

In addition, in the study, it is seen that an increase in ECI affects GDP negatively and the coefficient is statistically significant. This was in line with the finding of Hakura et al. (2014) which showed a negative association between growth and income inequality among fragile states. Its growth decomposition analysis suggested that addressing high inequality could significantly affect growth in SSA. Also, as evident in conflict theory which holds that stratification is dysfunctional and harmful in society, as social and economic inequality is perpetuated as it benefits the rich and powerful elite at the expense of the poor majority, thereby causing an uneven wealth distribution.

EXI exerted a positive significant impact on GDP at %1, as evident from our result. This was most likely due to positive externalities and spillover effects of a knowledge-based economy, leading to economic development. This implied that a one percent increase in EXI will lead to an increase in GDP. This coincided with the result produced by Gelbard et al. (2015) where foreign aids have a positive impact on economic growth among fragile SSA countries. Also, the same was observed by Misati et al. (2012) namely that governance indicators played a positive and significant role in the economic performance of African economies.

In summary, our results confirmed that ECD had a negative significant impact on economic growth among the observed variables and countries, while the impact of ECI and HFD was also negative and significant. Further, EXI had a positive and significant impact on economic growth within the scope of study.

4.8. Dumitrescu-Hurlin Causality Test

In attesting the causal relationship among the variables in this research, we adopted Dumitrescu-Hurlin causality as shown in Table below.

Table 8: Dumitrescu-Hurlin Causality Test

Null Hypothesis	Causality	W-Stat	Zbar-Stat	Prob.
ECD≠>LGDP	LGDP→ECD	1.51110	0.38136	0.7029
LGDP≠>ECD		3.62269	3.46554	0.0005*
ECI≠>LGDP	ECI→LGDP	2.44878	1.75093	0.0800***
LGDP≠>ECI		5.84116	6. 70581	2.1112
HFD≠>LGDP	LGDP→HFD	1.01389	0.34486	0.7302
LGDP≠>HFD		3.17325	2.80908	0.0050**
EXI≠>LGDP	EXI≠LGDP	1.08352	-0.24316	0.8079
LGDP≠>EXI		2.27460	1.49652	0.1345
ECI≠>ECD	ECI→ECD	2.84319	2.32700	0.0200***
ECD≠>ECI		1.98174	1.06877	0.2852
HFD≠>ECD	HFD↔ECD	3.63818	3.48816	0.0005*
ECD≠>HFD		2.51745	1.85123	0.0641
EXI≠>ECD	EXI≠ECD	1.07424	-0.25672	0.7974
ECD≠>ECI		1.49445	0.35704	0.7211
HFD≠>ECI	HFD→ECI	3.71155	3.59533	0.0003*
ECI≠>HFD		0.95523	-0.43053	0.6668
EXI≠>ECI	EXI≠ECI	1.01149	-0.34837	0.7276
ECI≠>EXI		1.32911	0.11555	0.9080
EXI≠>HFD	EXI→HFD	3.06691	2.65376	0.0080*
HFD≠>EXI		0.57024	-0.99285	0.3208

*Significance level at 1%, **Significance level at 5%, ***Significance level at 10%, Lag length: 2, (AIC)Akaike Information Criterion.

Note: ≠ represents no Granger causality, → symbolized unidirectional causality, and ↔ represents bidirectional causality. ≠>symbolized 'does not granger cause'.

From the result, we found unidirectional causality between GDP and ECD at one percent significance, which was in accord with the finding of Saba et al. (2019). Thus, we rejected the null hypothesis which states that there was no causal relationship between fragility indices and economic growth, meaning that the fragility indices had a significant impact on economic growth among the countries in this research. Also, unidirectional causality was observed among ECI and GDP, GDP and HFD, ECI and ECD, HFD and ECI, EXI and HFD respectively, thus leading to the rejection of the null hypothesis. We also observed that there was no causality among EXI and GDP, EXI and ECD, EXI and ECI respectively.

There existed bidirectional causality between HFD and ECD at one percent significance, which confirmed the earlier finding of Saba et al. (2021). Thus, we rejected the null hypothesis. The implication was that both ECD and HFD should be given ultimate attention by government officials and policy makers in fragile SSA countries to support stable economic growth.

5. CONCLUSION

This research study explored the concepts of fragility and economic growth. We observed that fragility issues are among the current issues in the field of development economics; however, the term 'fragility' has yet to be properly defined in this context. This research study tried to add to the existing literature by reviewing past studies and filling the research gaps that require further attention. Regarding the statement of the problem, we discovered that fragility is a broad concept, which prompted us to limit our indices to four major indicators: ECD, ECI, HFD, and EXI. We attempted to know the connection and impact these indicators have on economic growth as evidenced in the data concerning 10 fragile SSA countries. To suggest possible solutions to the problem we developed two research questions to achieve the objectives of this research.

To achieve our first objective to determine the connection between fragility and economic growth, we applied FMOLS and observed that the economic decline coefficient was negative and significant. We concluded that a percentage increase in the ECD will have a diminishing impact on GDP. In discovering the connection between ECI and GDP, a negative coefficient with statistical significance was observed through FMOLS. The empirical result indicated that HFD had a negative impact on GDP, and that it was significant. This showed that HFD served an important role in enhancing economic growth. We could further infer from the FMOLS result that the EXI coefficient positively and significantly impacted GDP.

To achieve our second objective we used MG, AMG, and CCEMG estimators and found that the economic decline was at a significant level. Thus, a unit increase in ECD among the studied countries will lead to a statistically significant decrease in GDP. Also, a negative coefficient was observed in HFD, which implied that an increase in HFD can reduce GDP. Furthermore, we observed that the ECI coefficient was statistically significant, and that a percentage increase in ECI is likely to decrease GDP. EXI exerted a positive and significant impact on GDP probably due to positive externalities and spillover effects of a knowledge-based economy. In summary, the results suggested that ECD had a negative significant impact on economic growth among the observed variables, while the impact of ECI and HFD, were also significant. EXI had a positive and significant impact on economic growth within the scope of study.

Our results confirmed that ECD, ECI and HFD have a negative effect on economic growth. The results obtained are also statistically significant. Thus, it is imperative for the governments of fragile states, policy makers, and international think tanks to develop effective corrective measures to control these indicators, so that there will be progressive growth. In tandem with the empirical analysis by Dalia et al. (2016), it is suggested that illicit trade and other illegal activities that inhibit uniform growth should be eradicated, so that there can be equilibrium in the economy. This can be achieved by creating more awareness to this issue among the public and propose a suitable working system that can support a stable economy. Also, the government should adopt appropriate foreign trade strategies that will enhance positive externalities with a view to stimulate economic growth. Further evidence showed that external intervention had a positive impact on economic growth; thus, there should more openness on part of the policy makers to integrate this positive indicator and improve the economy. When devising new policies for economic growth, officials must consider the role of this indicator and should support and encourage innovation, research, and development as evident in the empirical study by Carment et al. (2007) who assess theoretical and policy implication among fragile states. Also, the existing macro-economic policies should be reviewed at intervals and be flexible enough to aid foreign direct investment which is a positive externality. This will attract multinational companies to invest in the fragile states' economy and provide more jobs for the public and enhance national growth and development.

Our result also indicated a strong connection between ECD and HFD, which has the potential to inhibit or slow economic growth, with an overall negative impact across the estimates in this study. Thus, there is an urgent need for the government to develop and maintain a good infrastructure (i.e., electricity and water supply, storage and transport) and represent the interests of skilled workers and professionals. This will limit the problem of brain drain and ensure that all productive segments of society contribute their quota to the national economy and ensure economic growth and development in the long run. This recommendation is in line with empirical studies by Chami et al. (2021). Our findings helped us understand the nexus between fragility and economic growth in selected African countries, yet they may not be reflected in the conditions and dynamics of other fragile states not included in this study. For this reason, we suggest that the scope of future studies is expanded to cover more countries and regions when examining and proposing solutions to current fragility issues. Secondly, future studies could also consider the use of other indicators to measure fragility and cover longer periods of time, as this will add to the scope of knowledge within the field of study.

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